

5 What is claimed is:

1. A process for producing alkyl aromatic compounds which comprises contacting at least one aromatic compound with at least one ~~alkylating agent or~~ transalkylating agent possessing at least one aliphatic group having from 1 to 5 carbon atoms under ~~alkylation or~~ transalkylation reaction conditions, and in the presence of an ~~alkylation or~~ transalkylation catalyst, to provide an ~~alkylated~~ ^{transalkylated} aromatic product possessing at least one alkyl group derived from said ~~alkylating agent or~~ transalkylating agent, said catalyst comprising a binder-free molecular sieve having an X-ray diffraction pattern that includes the lines set forth in Table A, ^{wherein}

2. The process of Claim 1, wherein the binder-free molecular sieve has an X-ray diffraction pattern that includes the lines set forth in Table B.

3. The process of Claim 1, wherein the binder-free molecular sieve has an X-ray diffraction pattern that includes the lines set forth in Table C.

4. The process of Claim 1, wherein the binder-free molecular sieve has an X-ray diffraction pattern that includes the lines set forth in Table D.

5. The process of Claim 1, wherein the alkylating agent is an olefin having from 2 to 5 carbon atoms.

6. The process of Claim 1, wherein the aromatic compound is benzene and the alkylating agent is propylene or ethylene.

7. The process of Claim 1, wherein the aromatic compound is benzene and the transalkylating agent is polyisopropylbenzene or polyethylbenzene.

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8. The process of Claim 1, wherein the alkylation reaction conditions include a temperature of between about 0°C and 500°C, a pressure of from about 0.2 to 250 atmospheres, a space velocity, WHSV, of from about 0.1 to 500 and a molar ratio of aromatic compound to alkylating agent of from about 0.1:1 to 50:1

9. The process of Claim 1, wherein the transalkylation reaction conditions include a temperature of between about 160°C and 270°C, a pressure of about 1 to 70 atmospheres, a total space velocity, WHSV, of from about 1 to 20 and a molar ratio of aromatic compound to transalkylating agent of from about 0.1:1 to 50:1.

10. A process for preparing short chain alkyl aromatic compounds which comprises contacting at least one aromatic compound with at least one alkylating agent or transalkylating agent possessing at least one aliphatic group having from 1 to 5 carbon atoms under alkylation or transalkylation reaction conditions and in the presence of an alkylation or transalkylation catalyst to provide an alkylated aromatic product possessing at least one alkyl group derived from said alkylating agent or transalkylating agent, said catalyst comprising binder-free MCM-22, MCM-36, MCM-49 or MCM-56, or a binder-free molecular sieve comprising oxides of aluminum, silicon and phosphorus.